WHAT IS CLAIMED IS:

- 1. A vaccine composition against infection of *M. haemolytica* in cattle comprising an effective immunizing amount of at least one immunogen selected from the group consisting of (i) recombinant PlpE outer membrane protein of *M. haemolytica*, (ii) an antigenic subunit of thereof, and (iii) recombinant PlpE outer membrane protein of *M. haemolytica* or antigenic subunits thereof in combination with at least one other antigen against *M. haemolytica*, and further comprising a pharmaceutically acceptable carrier or diluent.
 - 2. The composition according to claim 1, wherein said carrier is an adjuvant.
- 3. The composition according to claim 1, wherein said recombinant PlpE outer membrane protein of *M. haemolytica* comprises the polypeptide of SEQ ID NO: 2.
- 4. The composition according to claim 3, wherein said subunits are selected from the group consisting of the polypeptides of SEQ ID NOS: 11-18.
- 5. The composition of claim 1, wherein the subunit comprises the polypeptide of SEQ ID NO: 12.
- 6. A method for inducing an immune response in cattle to provide immune protection against BRD and/or shipping fever, comprising administering to an at-risk bovine an effective amount of the vaccine composition of claim 1.

- 7. The method according to claim 6, wherein the amount of vaccine composition includes between 10-100 µg of recombinant PlpE outer membrane protein of *M. haemolytica* or antigenic subunits of thereof.
- 8. The method according to claim 7, wherein the amount of vaccine composition includes about 100 µg of recombinant PlpE outer membrane protein of *M. haemolytica* or antigenic subunits of thereof.